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Question Paper Code: 41582

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Electronics and Instrumentation Engineering

14UEI914 - INDUSTRIAL DATA NETWORKS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A _____ is set of rules that governs data communication.
(a) protocol (b) forum (c) standard (d) algorithm
2. _____ is the protocol suite for current internet.
(a) UNIX (b) NCP (c) TCP/IP (d) ACM
3. Each station on an Ethernet network has a unique _____ address imprinted on its network interface card.
(a) 48 bit (b) 32 bit (c) 5 bit (d) 16 bit
4. Which of the following is not a networking device?
(a) Router (b) Linux (c) Gateway (d) Firewall
5. HART is based on principle of
(a) ASK (b) FSK (c) PSK (d) All the above
6. The number of devices per wire in field bus is
(a) 16 (b) 8 (c) 32 (d) 64
7. MODBUS is _____ layer messaging protocol.
(a) Physical (b) Session (c) Application (d) Data Link

8. In PROFIBUS, the message size can be up to _____ bytes of data per node per message.
- (a) 244 (b) 422 (c) 242 (d) 233
9. Which standard supports various cable media and transmission rates at 10 Mbps?
- (a) IEEE 802.3 (b) IEEE 801.2 (c) IEEE 802.1 (d) IEEE 801.3
10. Fade margin is also referred to as
- (a) phase margin (b) gain margin (c) safety margin (d) Danger Zone

PART - B (5 x 2 = 10 Marks)

11. Give the frame format of CSMA/CD.
12. Identify the function of bridges?
13. List some advantages of field bus.
14. Draw a typical Modbus message frame format.
15. List the components of radio link.

PART - C (5 x 16 = 80 Marks)

16. (a) Describe the functions performed by various layers of ISO-OSI reference model. (16)
- Or
- (b) With a neat sketch explain CSMA/ CD protocol and its various layers. (16)
17. (a) Discuss the frame format, topology, cabling, encoding scheme and collision avoidance in Ethernet communication. (16)
- Or
- (b) What is a router? Explain the various routing techniques. (16)
18. (a) Elucidate the structure and elements of HART communication system. (16)
- Or
- (b) (i) Explain the architecture of field bus communication. (8)
- (ii) Enumerate on field bus standard specifications for low speed and high speed applications. (8)

19. (a) Give a detailed description of error detection and diagnostics of foundation field bus. (16)

Or

(b) What is communication object? Explain in detail the system operation of Profibus. (16)

20. (a) Explain the various modes and features of radio modems. (16)

Or

(b) Write a detailed note on Industrial Ethernet evolution and its types. (16)
